





The teaching-learning process: challenges in times of social isolation

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Abstract

The Covid-19 pandemic caused not only a global health crisis, but strongly impacted several developments in society. In education, thousands of students were removed from school, and remote education was the alternative for continuing their studies. This work aims to report the methodological resources used during the period of social isolation in the new imposed format of remote classes. Through online classes it was possible to establish a dialogue between teachers and students and, thus, virtual classes were discovered as an educational space, representing a great challenge for everyone involved. The results presented demonstrate how remote teaching can be useful for the critical reflection that permeates the field of the learning process. It is expected to provide elements for the construction of a transformative pedagogical praxis, contributing to the significance of the teaching and learning method.

Keywords: Covid-19. Remote Teaching. Pedagogical Practice.

O processo de ensino-aprendizagem: desafios em tempos de isolamento social

Resumo

A pandemia da Covid-19 causou não apenas uma crise sanitária mundial, mas impactou fortemente diversos desdobramentos na sociedade. Na educação, milhares de estudantes foram afastados da escola, e o ensino remoto foi a alternativa para continuidade dos estudos. Este trabalho visa relatar os recursos metodológicos utilizados durante o período de isolamento social no novo formato imposto de aulas remotas. Por meio das aulas *online* foi possível estabelecer um diálogo entre professores e estudantes e, assim, descobriu-se as aulas virtuais como espaço educativo, representando um grande desafio para todos os envolvidos. Os resultados apresentados demonstram como o ensino remoto pode ser útil para a reflexão crítica que permeia o campo do processo de aprendizagem. Espera-se fornecer elementos para a construção de uma práxis pedagógica transformadora, contribuindo para a significação do método de ensino e aprendizagem.

Palavras-chave: Covid-19. Ensino remoto. Prática Pedagógica





1 Introduction

The chaos that ravaged the world with the pandemic of COVID-19, has brought countless challenges in various areas, and according to the United Nations Educational, Scientific and Cultural Organization (UNESCO) the impact on educational systems reached about 1.5 billion students on the planet (UNESCO, 2020). If the teacher already faced difficulties in adapting to technological influences, in this new scenario, he or she found themselves even more challenged to carry out the entire educational process in a virtual way. Added to several aggravating factors accumulated throughout their training, teachers experienced extraordinary stress. There were problems of knowledge of the technological tools, of accommodation in the ways/methodologies of teaching, among many other factors that compromised the whole process.

The context of social isolation showed many things, among them that there is a gap in the training of teachers who were not prepared for a totally virtual dynamic. The active methodology, whose main characteristic is the student's protagonism in the learning process, is a great solution to be included as a teaching methodology. In this method, the teacher has to get out of the expository lectures and transform the students into protagonists and dialogue with them in the classroom in terms of knowledge.

The schools need to update and work with their teachers, especially with online classes, with the personalization of the students, creating an environment of freedom so that the student can question, ask and instigate about the programmatic content. Schools bring the student into the educational process with teachers, principals, coordinators, and parents. Even before this crisis, educational institutions were already under pressure to keep up with the fast pace of technological innovations, parents and educators are even more anxious to solve how educational activities will look in 2021.

For sure, adapting schools to offer online or distance learning classes must be an immense difficulty. In many regions not everyone has access to the Internet, the individual structure of teachers may also be limited, among many other problems. It is a moment that requires effort and collaboration from all parties. In this sense the research





problem can be summarized through the following question: What are the pedagogical methods used in the new remote classroom format?

Thus, this paper aims to describe the methodological resources used during the period of social isolation in which remote classes prevailed.

The indefinitions about the resumption of educational activities, due to the pandemic of the new coronavirus, represent a problem to be solved. In this panorama, the operational difficulties in teaching lack suggestions for improvements and pedagogical proposals, which justifies and makes this work relevant. According to Bezerra (2021), reports of the opportunities and challenges experienced by teachers in this remote teaching phase are essential.

For a better understanding of the study, the paper is organized into topics. The introduction describes the thematic approach and presents the problem, the objective, and the relevance of the research. The methodology details the procedure adopted to develop the study. The literature review covers the concepts of pedagogical practice and portrays how Information and Communication Technologies (ICT) assist in the learning process. The fourth part of this work presents the results with a discussion about the pedagogical practice during the pandemic. And finally, the final considerations highlight the main contributions of the research.

2 Methodology

The research methods adopted in this work were literature review and participant observation. The research can be classified as exploratory, with a predominantly qualitative approach.

In the subject of History of Animation and Cinema and in the subject of Screenwriting, of the course of Animation Design, of the Senac University Center of São Paulo, professor Dr. Luís Fernando Ferreira de Araújo - researcher and participant observation -, developed a work with classes of active methodologies and with a specific lesson plan that fits the personalized learning style of each student.





Observation is an essential qualitative research technique for the various sciences. Through observation, one can formulate the research problem, collect, analyze, and interpret the data. According to Adib (2013), the participant observation method requires that the observer be part of the group being investigated, and the researcher needs to be careful about maintaining multiple views and the ability to be critical of the data collected. Thus, using this research technique it was possible to outline a strategy to obtain the research data.

For Adib (2013), participant observation can entail an emotional involvement and an objective purpose, covering ethical aspects. Thus, when organizing the elements of the experience with the remote classes, it was prioritized those that could be used and transposed as data collection.

3 Pedagogical practice: teacher-student relationship in the learning process

The teacher has a fundamental role, as he/she acts as a mediator and, at the same time, as a motivator of the programmatic content to the student, in the development of his/her learning. According to Masetto (2012), the pedagogical practice corresponds to the domain of educational technology, in its theory and in its practice. However, this path of learning goes through several mishaps; for Silva (2008), adversity in the learning process occurs from basic education to higher education.

The basic elements to be applied in the learning process should be included in a lesson plan, which specifies the objectives, the menu, the methodology, the syllabus, and the teaching and evaluation resources. With this, the educational objectives are defined, that is, the skills and competencies required from the students during the classes.

The Ministry of Education (MEC), through Ordinance No. 882, complemented the National Curriculum Guidelines (DCNs) by defining guidelines for pedagogical practice





with the use of technology, so that teachers are able to develop new active and innovative approaches, both in face-to-face, remote or distance learning (BRASIL, 2021). Thus, technology has become essential in the teacher-student relationship, requiring new skills from both.

In higher education, there are several challenges that teachers face, such as the lack of incentive for professional development. According to Santos and Giasson (2019), monitoring and support by educational institutions are necessary, so that the dimensions of pedagogical and theoretical understanding and career development are contemplated. In the midst of so many transformations in education, it is a priority that teachers keep up with innovations through training.

In this scenario of profound changes in teaching, teachers and students find themselves anxious to solve how the educational activities will be organized, during and after the pandemic. The Higher Education Institutions (HEI) are adapting to the remote classes, but there are several diversities, because not all students have access to the internet, and the pedagogical process requires the presence of the professor and the student in the necessary exchanges for learning. It is not known, for sure, when face-to-face classes will be resumed, and the recent educational problems have only added to the demands that already existed.

The data analyzed in this study evidenced the students' involvement in the remote classes of the Scriptwriting and History of Animation and Cinema courses. Thus, they reiterated Freire's (2009) ideas regarding the need for an education for the formation of a critical and not passive view, even in a virtual way. An education built through dialogue between teacher and student, offering tools for critical analysis - the teacher mediating interpersonal relationships and interpreting the syllabus. Through remote teaching, the teacher can also offer elements for the construction of a transforming pedagogical practice, contributing to the significance of the teaching and learning process.





4 Information and Communication Technologies as a tool for learning

The advance of Information Technology (ICT) has been promoting considerable transformation in education, contributing with resources that support teachers in their pedagogical practices. The contemporary panorama of education is characterized by hyperconnected networks, and information can be accessed from anywhere at any time, as long as the means are available that allow people to learn without the need to be present in the physical space of the classroom, setting up a new teaching format, the Distance Education modality (DE). The pandemic of COVID-19 has toned down the relevance of the DE modality.

Technological innovations enhance the face-to-face and distance learning modalities, and the hybrid model, which configures the methodological combination of learning in virtual classroom and traditional classroom environments, known as blended learning. Current technologies promote more efficient and interactive educational platforms. According to Tori (2017), the interactivity of platforms is increasing the feeling of closeness by students.

Teaching platforms are being reformed in order to increase the quality of education. For example, the evolution of Internet of Technology (IoT) framework in education can bring significant contribution in Virtual Learning Environment (VLE). According to Tew et al (2017), the use of IoT technology can reflect in better performance of academic routine.

According to Progetti (2019), adaptive learning aims at encouraging interactions according to the individual need of each student, through the information that is obtained from the computational algorithms. This information is matched to the syllabus content. This method can be coupled with the platforms, enabling an improvement in learning.

Learning Analytics tools enable the use of learning data to do analysis on the educational performance of students. According to Dias Junior and Mercado (2019), LA is





an important tool in the academic area because it allows the generation of a large volume of data from the interaction of actors, content, and the technology itself in VLEs, being systematically stored, which, consequently, can be retrieved to discover knowledge, enabling improvement in solving educational problems.

Other technological trends that are supporting teaching and learning are the solutions in the areas of Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR) and Machine Learning.

Considering the academic routine in this period of social withdrawal, caused by the COVID-19 pandemic, it was possible to validate and, mainly, broaden the view of the strengths and weaknesses of distance learning. It is perceived that the platforms are increasingly equipped with innovative resources and methods, which increasingly arouses the interest of students for this type of education, but there is a search for solutions to encourage the development of interpersonal skills so that not only the platforms are interactive, but also teachers and students. There is also the need to promote better psycho-pedagogical monitoring and to diagnose the feeling of lack of social presence, one of the reasons for dropping out of school in this model.

5 Pedagogical Practice and its outcome in the classroom during the pandemic

Serious moments are also pregnant moments. To deal with the pregnancy that this moment contains, we need to look at our surroundings (CORTELLA, 2014, p.18).

Based on the academic activities that were being carried out in the usual scenario, before the pandemic, in a Technological course in Animation Design, an analysis was made of the measures adopted to adapt the presential classes to remote classes. The teacher who is the object of this case study is dedicated to the study of active methodology, being a very adequate knowledge for this new context, and that he





successfully applied in his classes, transforming the students into protagonists, stimulating dialogue.

It is observed that schools need to update and start offering new pedagogical tools to teachers, especially for virtual classes. As the active methodology requires the teacher to be open to a greater interaction with the student, who also becomes a protagonist, the educator must be better prepared. According to Blaszkoi (2021), the active methodology enables relevant, reflective, and more participatory learning. For Belo (2021), it is necessary that the teacher makes the pertinent adjustments in his or her lesson plan, taking into account the specific characteristics of the students.

The speed with which technological transformations are taking place and the wide availability of information nowadays instigates each and every educator. He needs to find new methodologies almost in real time. In this way, the active methodology has presented itself as a good solution adequate to this contemporary movement. However, the role of the teacher as a mediator and stimulator of teaching-learning is even more important, since the human learning capacity follows its biological course, regardless of the speed of the scenario.

In the face-to-face classes of the subject "Screenwriting" and the subject "History of Animation and Cinema", the teacher had developed a work with active methodology classes and with a specific lesson plan that fit the personalized learning style of each student. With this, the student was the center of the pedagogical proposal and became the main agent of his learning. And not to repeat old methodologies that only related the reading of the script and the cinematographic movements. The teacher sought to create a seminar within the classroom about the history of animation and cinema. Besides being captivating, the strategy allowed us to analyze the elements of the teaching plan of the subject Screenplay, whose menu is: "to approach the development of fiction screenplay writing for animation", and the subject History of Animation and Cinema, whose menu is: "To present the history of animation and cinema from the western artistic, cultural and communication expressions". The





mediated reading made them figure out how to make a seminar about the cinematographic movements. In the classroom, the students sought to create a debate within the classroom and especially in the events prepared by the teacher in the production of a script about the indigenous culture. The story was about the struggle of a 15 year old Indian girl for ownership of her land to shelter her tribe.

With the pandemic, this methodology needed to be adapted to a totally remote environment. The classes started to be mediated by the Virtual Learning Environment (VLE), and the platform used was BlackBoard.

In this new model, the same lesson plan was kept as in the classroom, and the students performed the seminars proposed by these disciplines. In Animation and Cinema History, the themes were: German Expressionism; Italian Neorealism; Cinema Noir; Melodrama; Cinema Novo; Animation in Brazil; Walt Disney and his History; Japanese Animation and Hanna Barbera Animation. There was a critical analysis of the student's performance, and during the remote class itself, the teacher gave feedback to the students about the themes presented.

In the screenwriting remote classes, the students presented an essential scene from their scripts, i.e., an "essential scene" is one that, taken from an essential incident, the narrator considers obligatory and essential to the story. This presentation was made in storyboard format [

Storyboard - a script that contains drawings in chronological sequences, showing the scenes], in which they explained why they chose that scene as an essential scene of their scripts to the class. With this way of working, the teacher recreated and discovered a new way to teach the student to live the active methodology to transform themselves in their lives formally and informally.

In the face-to-face class, the teacher conducted in a more expository way, charging the students to understand more of the content and at the same time asking the students about the theme he was working on that day. In the Script class activities,





everyone wrote on the computer, the teacher made corrections to the scripts giving feedbacks so that the students knew their mistakes to understand and redo them with tranquility. When the script was finished, the students would present it to the class and everyone would discuss how the story was made and give their opinions on how to improve their classmates' stories, while the teacher acted as a mediator. In the Animation and Cinema History class, the students prepared a seminar with the cinematographic movements and each group presented their movement and at the end of the presentation they opened the discussions about what was presented and the teacher always helped, oriented and commented the presentations of the seminars made by the students.

With the remote class format, the contact became more obscure, because everyone was connected by computer using the institution's VLE, the teacher passed the webconference link so that all students could access the class synchronously. But despite every feeling of discomfort, the teacher used the expository method for the presentation of the class discussion topics and managed to get positive and exciting results from his classes. The students wrote their scripts at home and, during the next class, the teacher was dedicated to the corrections, which generated a certain expectation, as each student was waiting for his or her corrections and comments.

If on the one hand the lack of personal contact was what the teacher felt most in the virtual teaching modality - contact via computer brings a certain coldness to the interaction -, this experience also allowed him to realize new skills and ways of relating to the students.

With the proposal of online seminars, the students made their presentations and, only at the end, the teacher argued, with questions and comments, which worked very well. As an incentive for the performance in the activities, the teacher sent to the students' home addresses, via mail, a trophy (symbol of achievement), in order to put them in the center of their learning, in which he is responsible for what he presented and learned with this seminar about the cinematographic movements. Figure 1



illustrates some of the students receiving the trophies at their homes, for their performance in the activity proposed in the virtual classroom.

The students experienced, with these remote classes, the satisfaction of doing an analysis and recognizing explicit and implicit information about how the classes revealed positioning and their readings of the universe about their environment. With this, it is hoped to make students aware that being a protagonist in the classroom is fundamental to the development of intellectual growth as a whole in their personal and professional lives. The proposed didactics can establish a dialogue between teacher and student, and thus, it was discovered during the pandemic, a way to minimize a great challenge.

Figure 1: Active Methodology in Remote Teaching



The execution of the teacher's proposal, by the students, showed the good interaction and dialogism between teacher and student. Some achievements illustrated



this:

1) The survey of the most covered themes in the disciplines of "Storytelling" and "History of Animation and Cinema" transmitted by AVA;

2) The discussion of the themes Storytelling, History of Cinema and Animation and the construction of characters within a screenplay through the VLE.

Table 1 consolidates the differences of the pedagogical practices in the face-to-face and remote modes. The activities motivated the teacher and the students by providing interaction among the participants, by the relaxed atmosphere, for the manifestations of creativity of expressions, transformations, and recreations. Although the online classes have the limitation of the technological resource, the sensation was one of overflowing satisfaction. It was possible to mobilize the student and build a stimulating investigation that allowed the exploration of culture, values, and several other triggering elements about what was proposed in each class.

At each virtual class, it was evident how the student had dedicated himself and absorbed the content presented in a playful way. In this way, it is clear that the educator can work with provocative and innovative methodologies, regardless of the complexity of the instrumental tool they have. The data found during the face-to-face and online classes were comprehensive in the understanding of the paths followed in the pedagogical practice as a didactic resource by:

- stimulating student interaction;
- exploring the construction of the online class as a resource for the improvement of the teaching language;
- applying virtual learning in a practical way, providing a pleasurable way to acquire knowledge.
- Through the active method, the students advanced to the understanding of what





exists behind the face-to-face classes. In the online classes, the students showed qualities and potentials, enabling dialogue and the exchange of experiences. Thus, it was possible to observe the different forms of teaching, both in face-to-face and distance learning. Bringing to remote teaching the context of the face-to-face classroom, motivated greater questioning and contributions for a better understanding of the creative learning process.

Chart 1 - Pedagogical Practice In-Person x Remote

	Presencial	Remota
Contexto	The teacher is the mediator, guide, and facilitator of learning for the students.	The student is the protagonist of his learning in relation to the content.
Methodology	Active Methodology: Teacher produces content for students to produce the proposed activities: seminars and class discussions.	Active Methodology: the students researched the topics and discussed them with the teacher.
Pedagogical Practice	Class discussions about the content to be applied in the courses.	Seminars to encourage students' freedom to question, to ask questions about the content.
Stimulus	Student developing autonomy within a flexible curriculum and bringing their experiences into the classroom.	The student experienced the active methodology, recreating, creating and discovering a new way of learning.
Result Achieved	Classroom teacher-student dialogue, stimulating critical reflection of the contents.	Built a more meaningful classroom for everyone and the student as the center of the learning pedagogical proposal.
Acquired Knowledge	The student brought new knowledge	The student sought information



	about learning.	through research and knowledge.
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6 Source: Prepared by the authors, 2021.

7 Final Thoughts

This work presented a proposal for an educational action aiming at a more effective approach with its students in the remote teaching model. This happened through interactions, which allowed dialogue, experiences, helping students in script preparation, production, recording, etc. Everyone was engaged in preparing the activities and involved in the teamwork. When presenting the textual production of the script, the students expressed through the images, the imagination, the seduction, the emotion about the concreteness of the reality produced by the students within the story they had elaborated. This activity showed the students how to expose their point of view and bring to the classroom themes present in their daily lives as teenagers, such as dating, sexuality, friendship and family, which by the way are ignored by the school.

For Freire (2009), education should seek the practice of freedom. He also criticized traditional education in Brazil, as he classified it as a banking education where the teacher is the owner of knowledge and the student is simply a listener (FREIRE, 2007). Freire preached the need for an education for decision, for social and political responsibility, that is, education should form a critical view and not just a passive one in the classroom.

Education must be built through dialogue between teacher and student, where contents are not repeated, but the student is given the tools to critically analyze everything that is revealed to him. Hierarchically, the teacher is the one who still dominates the knowledge inside the classroom. Based on Freire's ideas, however, the teacher becomes a mediator of interpersonal relationships and the interpreter of the syllabus in order to develop, in the student, autonomous thinking, the possibility to act on the information received in line with





their previous knowledge and lived contexts. It is up to the teacher, then, the function of supporting the student to interpret new languages, because the student brings from his world a knowledge about them and the teacher cannot exclude them within the student's culture.

Through contextualization, the student reaches new languages in his daily life. For this to happen, the teacher needs to talk, question, and inquire in his classes so that the students use these elements as a way to rescue their vocabulary, through the interaction of the teacher and the student within the learning process, that is, this interaction is important for the intellectual formation of the student.

This study did not intend to exhaust the discussion of the subject, quite the contrary, it sought to contribute to the educational field regarding the interweaving of pedagogical practice within online classes. It is hoped to contribute to the acceptance of new forms of education, with the use of online classes as a pedagogical resource, without impairing the quality of teaching.

Considering the proposed objective of dealing with the methodological resources used during the period of confinement, it was possible to show how the online class can provide favorable experiences to the student. The experience of remote teaching during the pandemic was positive; despite the difficulties of the technological resources, there was great interaction and participation from the students.

Among the hardships of a pandemic, before moments of sadness and mourning, it can be pointed out that in face of the challenges imposed, the teacher had to reinvent himself, to seek new ways to apply his pedagogical work, assuming the technological portion that he often denied due to insecurity or because he didn't bet on the pedagogical potential of ICTs.

By associating ICTs to pedagogical practices, he realized that the actions of a face-to-face classroom would not apply the same way in a virtual learning environment,





making it necessary to rethink his way of planning and acting towards his students. Thus, in the face of challenges never before faced, the search for active methodologies, shared practices between teachers and students proved to be a fruitful path for the development of a new way of teaching.

By observing the practice of active methodologies, mediated by ICTs, we noticed a greater interaction among students who, a priori, complained about the remote classes, as they were used to monologue classes, videos without dynamism, without life, returning to the worst of the lecture class: the one where only the teacher speaks.

By using the active methodologies in remote teaching practices, the teacher gave back to the students their protagonism, their voice and presence for interaction and exchange of knowledge, whether conceptual or technological, since the generation of students demonstrates greater proficiency and digital fluency.

The platforms are increasingly equipped with innovative resources and methods, as discussed in this paper, through their various digital interactivity features. This fact increasingly arouses students' interest in this type of teaching, but continues to seek solutions to encourage the development of interpersonal skills so that not only the platforms are interactive, but also teachers and students.

Then, teaching and learning become a process of partnerships, of knowledge exchange, of a joint journey, in which everyone involved can develop or apply their skills, contributing to make knowledge a factor of autonomy, a way of making individuals who, by being together, in communion, discover better ways of developing themselves.

Even though a long way needs to be followed, even after the pandemic, hopefully teachers will understand that one can no longer teach in a solitary way, that students are holders of knowledge and skills and that, when invited to make use of them, they can contribute a lot to the consolidation of the class, the pedagogical act, learning being the greatest objective that is sought when choosing a methodology at the time of planning.





References

ABIB, G., HOPPEN, N. & HAYASHI JUNIOR, P. (2013). Observação participante em estudos de administração da informação no Brasil. **Revista de Administração de Empresas**, 53(6).

BELO, P. A. de P., OLIVEIRA, R. M. de, & SILVA, R. C. da. (2021). Reflexos da relação professor-aluno para a aprendizagem no contexto formal de ensino. **Práticas Educativas, Memórias e Oralidades - Rev. Pemo**, 3(2), e323880–e323880. <https://doi.org/10.47149/pemo.v3i2.3880>.

BEZERRA, N. P. X., VELOSO, A. P., & RIBEIRO, E. (2021). Resignificando a prática docente: Experiências em tempos de pandemia. **Práticas Educativas, Memórias e Oralidades - Rev. Pemo**, 3(2), 323917–323917. <https://doi.org/10.47149/pemo.v2i3.3917>

BLASZKO, C. E., CLARO, A. L. DE A., & UJII, N. T. A contribuição das metodologias ativas para a prática pedagógica dos professores universitários. **Educação & Formação**, 6(2), e3908–e3908. <https://doi.org/10.25053/redufor.v6i2.3908>, 2021.

BRASIL, Ministério da Educação. Novas Diretrizes reforçam uso da tecnologia nos processos de aprendizagem. **Portal do Mec Educação Conectada**, 2021. Disponível em: <http://educacaoconectada.mec.gov.br/todas-noticias/219-novas-diretrizes-reforcam-uso-da-tecnologia-nos-processos-de-aprendizagem>.

CORTELLA, M. S. **Educação, escola e docência**. São Paulo: Cortez, 2014.

DIAS JÚNIOR, M. V.; Mercado, L. P. L. Ações docentes nos Ambientes Virtuais de Aprendizagem proporcionadas pelas ferramentas de Learning Analytics. **Revista Iberoamericana de Educación**, vol. 80 núm. 1, pp. 117-137, 2019.

FREIRE, P. **Pedagogia da autonomia: saberes necessários à prática educativa**. Rio de Janeiro: Paz e Terra, 2007.

FREIRE, P. **Educação como prática da liberdade**. Rio de Janeiro: Paz e Terra, 2009.

MASSETO, M. T. **Competência pedagógica do professor universitário**. São Paulo: Summus editorial, 2012.





PROGETTI, C. B. **Avaliação de eficiência do uso de tecnologia da informação e comunicação para suporte à educação a distância.** Tese de Doutorado, Escola Politécnica, Universidade de São Paulo, São Paulo. doi:10.11606/T.3.2020.tde-28022020-074201, 2019.

SANTOS, F. M. B. DOS, GIASSON, F. DA F. (2019). Docência no Ensino Superior: Formação, iniciação e desenvolvimento profissional docente. **Práticas Educativas, Memórias e Oralidades - Rev. Pemo**, 1(1), 1–12. <https://doi.org/10.47149/pemo.v1i1.3543>

SILVA, M. C. **Dificuldades de aprendizagem:** do histórico ao diagnóstico. O Portal dos Psicólogos. p. 1-13. 2008.

TEW, Y. *et al.* A study on enhanced educational platform with adaptive sensing devices using IoT features. **Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)**: p. 375–379. doi:10.1109/APSIPA.2017.8282061, 2017.

TORI, R. **Educação sem distância.** As tecnologias interativas na redução de distâncias em ensino e aprendizagem. São Paulo: Artesanato Educacional, 2017.

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